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ABSTRACT

Self-teaching machines housed in trailer-classrooms were used for the fourth year to help 351 students in two Minneapolis Title I secondary schools improve their reading skills. A gain of 1.4 grade equivalent months by 25 percent of the students (using Gates-MacGinitie Comprehension tests) for each month on roll was the specific objective of the project. Furthermore, 50 percent of the students were to show a gain of at least one grade equivalent month for each month on roll. The project featured the use of three-button response machines with both commercially and locally developed materials. Machines were housed in two large trailers which were located at Bryant and North secondary schools. Although students operated the machines and tested their own progress at the end of each lesson, assistance was available from the certified reading teacher and paraprofessional who staffed each trailer. In 1973-74 gain scores were obtained from only 39 percent of the students because of pupil transfers, truancy, and faulty testing procedures. On the basis of the small number (136) of students tested, the project met its objectives in that 71 percent gained at the rate of 1.4 grade equivalent months for each month on roll and 76 percent gained one grade equivalent month for each month on roll. It was recommended that the Mobile Learning Centers' program be continued. (Author)

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Minneapolis Public Schools

Mobile Learning Centers of Minneapolis 1973-74

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Ideas expressed in this report do not necessarily reflect the official position of the Minneapolis Public School Administration nor the Minneapolis School Board

Research and Evaluation Department
Planning and Support Services

807 N.E. Broadway
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December 1974
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Minneapolis Public Schools

Mobile Learning Centers
of Minneapolis
1973-74

Summary

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About this report. . . . . .

All evaluation reports prepared by the Research and Evaluation Department of the Minneapolis Public Schools follow the procedures and format described in Preparing Evaluation Reports, A Guide for Authors, U. S. Department of Health, Education and Welfare.

Readers who are familiar with these Evaluation Reports may wish to skip the sections describing the City of Minneapolis and the Minneapolis Public Schools since these descriptions are standard for all reports.

The City of Minneapolis

The program described in this report was conducted in the Minneapolis Public Schools. Minneapolis is a city of 434,400 people located on the Mississippi River in the southeastern part of Minnesota. With its somewhat smaller twin city, St. Paul, it is the center of a seven-county metropolitan area of over 1,874,000, the largest population center between Chicago and the Pacific Coast. As such it serves as the hub for the entire Upper Midwest region of the country.

The city, and its surrounding area, long has been noted for the high quality of its labor force. The unemployment rate in Minneapolis is lower than in other major cities, possibly due to the variety and density of industry in the city as well as to the high level capability of its work force. The Twin City metropolitan area unemployment rate in June of 1974 was 4.0%, compared with a 5.2% national rate for the same month. As the economic center of a prosperous region rich in such natural resources as forests, minerals, water power and productive agricultural land, Minneapolis attracts commerce and workers from throughout the Upper Midwest region. Many residents are drawn from the neighboring states of Iowa, Wisconsin, Nebraska and the Dakotas as well as from the farming areas and the Iron Range region of outstate Minnesota.

More Minneapolitans (32%) work in clerical and sales jobs than in any other occupation, reflecting the city's position as a major wholesale-retail center and a center for banking, finance and insurance. Almost as many (26%) are employed as craftsmen, foremen and operatives, and 23% of the work force are professionals, technicians, managers, and officials. One out of five workers is employed in laboring and service occupations.

Minneapolis city government is the council-dominated type. Its mayor, elected for a two year term, has limited powers. Its elected city council operates by committee and engages in administrative as well as legislative action.

Minneapolis is not a crowded city. While increasing industrial development has occupied more and more land, the city's population has declined steadily from a peak of 522,000 in 1950. The city limits have not been changed since 1927. Most homes are sturdy, single family dwellings built to withstand severe winters. Row homes are practically non-existant even in low income areas. In 1970, 48% of the housing units in Minneapolis were owner-occupied.

Most Minneapolitans are native born Americans, but about 35,000 (7%) are foreign born. Swedes, Norwegians, Germans, and Canadians comprise most of the foreign born population.

Relatively few non-white citizens live in Minneapolis although their numbers are increasing. In 1960 only three percent of the population was non-white. The 1970 census figures indicate that the non-white population had more than doubled (6.4%) in the intervening 10 years. About 70% of the non-whites are black. Most of the remaining non-white population is American Indian, mainly Chippewa and Sioux. Only a small number of residents from Spanish-surnamed or Oriental origins live in the city. In 1970 non-white residents made up 6.4% of the city's population but accounted for 15% of the children in the city's elementary schools.

Minneapolis has not reached the stage of many other large cities in terms of the level of social problems. It has been relatively untouched by racial disorders or by student unrest. Crime rates are below national averages.

One's first impression is that Minneapolis doesn't really have serious problems of blight and decay. But the signs of trouble are evident to one who looks beyond the parks and lakes and tree-lined streets. As with many other larger cities, the problems are focused in the core city and are related to increasing concentrations there of the poor, many of them non-whites, and of the elderly. For example, nine out of 10 black Americans in Minneapolis live in just one-tenth of the city's area. While Minneapolis contains 11% of the state's population, it supports 28% of the state's AFDC families.

There has been a steady migration to the city by American Indians from the reservations and by poor whites from the small towns and rural areas of Minnesota. They come to the "promised land" of Minneapolis looking for a job and a better way of life. Some make it; many do not. The American Indian population is generally confined to the same small geographic areas in which black Americans live. These same areas of the city have the lowest median incomes in the city and the highest concentrations of dilapidated housing, welfare cases, and juvenile delinquency.

The elderly also are concentrated in the central city. In 1970, 15% of the city's population was over age 65. The elderly, like the 18 to 24 year old young adults, live near the central city because of the availability of less expensive housing in multiple-unit dwellings. Younger families have continued to migrate toward the outer edges of the city and to the surrounding suburban areas.

The Minneapolis Schools

About 65,456 children go to school in Minneapolis. Most of them, about 57,715, attend one of the city's 98 public schools; 7,741 attend parochial or private schools.

The Minneapolis Public Schools, headed by Dr. John B. Davis, Jr., who became superintendent in 1967, consists of 67 elementary schools (kindergarten-6th grade), 15 junior high schools (grades 7-9), nine high schools (grades 10-12), two junior-senior high schools, and five special schools. Nearly 3,500 certificated personnel are employed.

Control of the public school system ultimately rests with a seven-member board which levies its own taxes and sells its own bonds. These non-salaried officials are elected by popular votes for staggered six-year terms. The superintendent is selected by the board and serves as its executive officer and professional adviser.

Almost 40 cents of each local property tax dollar goes to support a school system whose annual operating general fund budget in 1974-75 is $78,008,036 up from $75,493,430 in 1973-74. Minneapolis received federal funds totaling 11.4 million dollars in 1973-74 from many different federal aid programs. The Elementary and Secondary Education Act provided about 5.1 million dollars, of which 3.9 million dollars were from Title I funds. The adjusted maintenance cost per pupil unit in the system was $1,038 in 1972-73 while the range of per pupil unit costs in the state for districts maintaining elementary and secondary schools was from $548 to $1,316.

One of the superintendent's goals has been to achieve greater communication among the system's schools through decentralization. Initially, two "pyramids" or groups of geographically related schools were formed. First to be formed, in 1967, was the North Pyramid, consisting of North High School and the elementary and junior high schools which feed into it. In 1969 the South-Central Pyramid was formed around South and Central High Schools. Each pyramid had an area assistant superintendent as well as advisory groups of principals, teachers, and parents. The goals of the pyramid structure were to effect greater communication among schools and between schools and the community, to develop collaborative and cooperative programs, and to share particular facilities and competencies of teachers.

In the summer of 1973 decentralization was carried one step further when the entire school district, with the exception of five schools involved in an experimental program called Southeast Alternatives, was divided into three areas.

Each of these areas -- East, West and North -- is headed by a superintendent who has autonomous decision-making power within the guidelines of school district policies and philosophies.

Based on eight counts on October 16, 1973 the percentage of black American pupils for the school district was 11.7%. Nine years before, the percentage was 5.4%. American Indian children currently comprise 4.3% of the school population, more than double the proportion of nine years ago. The proportion of minority children in the various elementary schools generally reflects the prevailing housing pattern found in each school area. Although some non-white pupils are enrolled in every elementary school, non-white pupils are concentrated in two relatively small areas of the city. Of the 67 elementary schools, 12 have more than 30% non-white enrollment and seven of these have over 50%. There are no all-black nor all-white schools. Eighteen elementary schools have non-white enrollments of less than 5%.

The Minneapolis School Board has approved a desegregation plan involving busing which has operated smoothly since taking effect in September 1973.

The proportion of school age children in AFDC homes has more than doubled from approximately 12% in 1962 to 28% in 1972.

While the median pupil turnover rate for all the city schools in 1971-72 was about 24.5%, this figure varied widely according to location (turnover rate is the percentage of students that comes new to the school or leaves the school at some time during the school year, using the September enrollment as a base figure). Target Area schools generally experience a much higher turnover rate; in fact only four of the Target Area schools had turnover rates less than the city median. Compared with the city, the median for the Target Area schools was 36.1%.

The Target Area

The Target Area is a portion of the core city of Minneapolis where the schools are eligible to receive benefits from programs funded under Title I of the Elementary and Secondary Education Act (ESEA). A school is eligible to receive Title I aid if the percentage of families residing in that school's district which receives AFDC payments (in excess of $2,000 a year) -- or has an annual income under $2,000 -- exceeds the citywide percentage for families in those categories.

In 1972-73, nearly 26,871 children attended the 25 elementary schools, five junior highs, three senior highs and seven parochial schools that were eligible to receive this aid. One-third of these students were from minority groups and one-third were defined by the State Department of Education as

educationally disadvantaged, i.e. one or more grade levels behind in basic skills such as reading and arithmetic. Federal programs are concentrated on the educationally disadvantaged group.

According to 1970 census data, over 170,000 persons resided in the Target Area. Of that group, 11 percent were black and 3½ percent were Indian, more than double the citywide percentage of minority group members. Over half of the Target Area residents over 25 years old had not completed high school, compared to the 35 percent of the non-Target Area residents who did not have high school diplomas. One out of five Target Area residents over the age of 25 had gone to college, and nine percent had completed four or more years. One out of four of the non-Target Area residents had gone to college, and 15 percent had completed four or more years.

The income for an average Target Area family was $9,113 in 1970, about $2,000 less than the citywide average. The homes they lived in had an average value of $10,385, over 40 percent less than the average value of a single family residence in Minneapolis. One out of five Target Area children between the ages of 6 and 17 was a member of a family that was below the poverty level, while only 6 percent of the non-Target Area children had such a family status.

Historical Background

The school year of 1973-74 was the fourth year of operation of the Mobile Learning Centers. In 1970 the Minneapolis school system had recognized the need for an innovative approach to the reading difficulties of a number of secondary students in Target Area schools and had allocated funds for teaching machines. A group of teachers and administrators from the system had been impressed with the programs and machines presented by the Dorsett Educational Systems at the Aerospace Educational Technology meetings held in Washington, D.C. in January 1970. After further investigation and discussion the Mobile Learning Centers project, incorporating the Dorsett machines and programs, was initiated when funds from NDEA Title III and ESEA Title I---as well as local funds---became available. Two large trailers were bought to serve as classrooms to provide mobility for the project. The use of these Mobile Learning Centers was restricted to Title I schools because of the federal funds which helped support the project.

The project's operations were successful in increasing the rate of progress in comprehension and vocabulary of students who had been one or more years below grade level. A brief overview of past findings is included here. More detailed reports on the earlier years are available.[1]

In 1970-71, positive and definite gains in vocabulary and comprehension were made by the 240 students for whom gain scores were obtained. Their rate of progress was from two to six times that which would have been expected based on their previous achievement. All the students had been one or more years below grade level in reading skills before their selection for the program. Gates-MacGinitie tests were used. In the second year of operation the program was again more than successful in reaching its goals. Eighty percent of the students tested made grade

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Clark, S.P. Evaluation of the Mobile Learning Centers in Minneapolis Secondary Schools, 1970-71. Minneapolis: Minneapolis Public Schools, 1972.

Clark, S.H. Mobile Learning Centers of Minneapolis, 1971-72. Minneapolis: Minneapolis Public Schools, 1973.

Clark, S.H. Mobile Learning Centers of Minneapolis, 1972-73. Minneapolis: Minneapolis Public Schools, February 1974.

equivalent gains in comprehension over those expected for length of instruction. Sixty-four percent made such gains on vocabulary tests. In 1972-73, over 85% of the 218 students for whom gain scores were available made grade equivalent gains in comprehension over expectation for the length of enrollment in the program.

Objectives

The general goal of this program was to improve the reading skills of secondary students, in selected Title I schools, who were one or more years below grade level in reading as of September 1973. Specifically, 25% of the students were to show a gain of 1.4 grade equivalent (G.E.) months on Gates-MacGinitie Comprehension tests for each month on roll and 50% were to gain at least one G.E. month for each month on roll.

Project Operations

Two large trailers, about 60 by 14 feet, were used to house the Mobile Learning Centers. Each trailer contained 18 three-button response teaching machines in semi-private booths. Students were assigned to the program for one period a day. The length of assignment varied depending on the student's progress rather than on a quarter or semester break. Both trailers were carpeted and air-conditioned. Each trailer had an attractive free-reading corner which included a lounge and table with magazines of high interest level for the attending students.

Dorsett programs in vocabulary and comprehension were used exclusively in the first three years of the project's operation. In the fall of 1973 the Basic Skill Centers Reading Program materials, which had been developed beginning in 1971 by Minneapolis Basic Skill Centers staff, were made available for students who were reading below the fourth grade level. Both programs made use of the TV-like teaching machines which provided visual and auditory stimuli. The Basic Skill Centers Reading Program provided additional materials for non-machine use. The Basic Skill Centers Program was used at Bryant but not at North.

The program was flexible and completely individualized. Progress

checks were made at the end of each lesson so that the teacher or aide could provide immediate reinforcement for good work done or, if necessary, give the student added instruction.

Participating Schools and Students

Bryant Junior High, an inner city school, is in the West Area of the Minneapolis school system. There was a change in 1973 in its student population due to implementation of the city's desegregation plan. In 1972-73 Bryant had included grades 6-9 with a 43% minority student population.[2] In 1973-74 only seventh and eighth grade students were enrolled and the minority population dropped to 39% of its 798 pupils.

North High, another Target Area school, is in the North Area of the system. It served grades 9-12 and had a minority population of 41% in 1973-74 with a total enrollment of 1545.

Students were selected for the program by counselors and teachers who based their recommendations mainly on the students' city-wide reading test scores. The pupils were either one or more years below grade level or below the twenty-fifth percentile on Minneapolis reading norms. A total of 351 students enrolled at the Centers at various times over the 1973-74 school year. Enrollment figures for the project, by school and grade are given in Table 1. The sexes were evenly represented at both schools.

Bryant and North were both designated in the fall of 1973 as eligible for assistance from the Emergency School Aid Act (ESAA) because of their participation in the city's desegregation-integration plan. The ESAA teachers at the two schools played an important part in the student selection procedures although the ESAA program was later dropped at North. At Bryant, however, 79 of the 100 students for whom gain scores were obtained were identified as being in the ESAA program. The section on results in this report will be presented by school and test level as well as whether the student was identified as ESAA or Title I. In general, the ESAA students were those Title I eligible students who were the farthest below grade level.

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[2] Figures for student and minority populations in this section are taken from the annual October sight counts compiled and published by Information Services Center, Minneapolis Public Schools.

Table 1

Enrollment in Mobile Learning Centers
By School and Grade
1973-74

School And Grade	School Enrollment[a]	Number Enrolled In Center	Percent of School Total
Bryant			
7	463	54	12%
8	300	63	21%
Special	35	(b)	---
All Grades	798	117	15%
North			
9	264	60	23%
10	496	129	26%
11	389	32	8%
12	307	13	2%
Special	89	(b)	---
All Grades	1545	234	15%

[a] Information Services Center. Pupil Sight Count, 1973-74. Minneapolis: Minneapolis Public Schools, 1973. (Sight count taken October 16, 1973).

[b] Some students may have been Special but not identified as such.

Personnel

Each trailer was staffed with a certified reading teacher and a paraprofessional, both of whom had previously received inservice training on the use of the Dorsett materials and machines. The teacher and aide at the North trailer had previously worked in the project before as had the teacher at Bryant.

Although the materials were self-instructional, the teachers selected the programs according to each student's needs. In addition, teachers gave instruction and assistance to those who had problems with lessons. The aides also gave pupils assistance. Aides helped in scoring progress checks which were completed after each lesson. Keeping student records and arranging for machine maintenance were other responsibilities of the aides.

At Bryant, the ESAA teacher worked closely with the Center teacher. No other supplemental services were received from non-staff members.

Parent and Community Involvement

Open houses were held at the trailers when similar events were sponsored by the PTA's at the respective schools. The Title I Parent Advisory Committee was informed about the project and results obtained in previous years. The Committee also reviewed and approved the city-wide Title I proposal made to the state. A description of the Mobile Learning Centers project was included in that proposal.

Planning and Training

A five-day inservice program was given to the teacher at Bryant in the use of the Basic Skill Centers Reading Program. The aide at Bryant was also instructed in the use of the teaching machines and the Dorsett program.

Budget

This project received $43,400 from Title I funds which made an average Title I cost of $124 for each of the 351 students.

Tests Used

Gates-MacGinitie Comprehension tests were used as specified in the objectives for the project. Instructional level, rather than grade level, testing was used. In previous years Level D, designed for grades 4-6, was used for junior high students and Level E, intended for grades 7-9, was used at the senior high school. This procedure was followed at North (grades 9-12). At Bryant the testing followed the plan outlined by ESAA so that the students did not have to be tested more than necessary at the beginning of the school year. This meant that the Level C test was used for the lowest level readers in the Bryant Center. Different forms of the tests from those used in the city-wide testing program were used. The tests were administered by the teachers who had given them in previous years.

Data Groups

Student test data obtained from the trailers was divided into three categories: the evaluation groups who had usable pre- and posttest scores, those who lacked posttests, and those with invalid scores. The distribution of the number of student in these categories is given in Table 2.

Table 2

Data Groups

	Bryant		North		Total	
	N	%	N	%	N	%
Evaluation Groups	89	76%	47	20%	136	39%
Lacked Posttests	11	9%	135	58%	146	41%
Invalid Scores	17	15%	52	22%	69	20%
	117	100%	234	100%	351	100%

The evaluation group at Bryant was further divided into three groups by test level and program. The Gates, Level C, test was used by ESAA students. The Level D test was used by one group of ESAA students and one of Title I pupils. The eleven students who lacked gain scores were on roll for 26 days and present for 21 of those days. The 17 invalid scores were due to the use of a different level of test on the posttest from that used at the beginning of the program.

At North only 20% of the test scores were usable for evaluation purposes. Of these, sixteen were at Level D and 31 were tested with Level E. The attendance rate of those without gains scores was very low (43%); they were present for an average of 23 days out of 53 days on roll. Fifty-two "gain scores" were ruled invalid when it was found that the scores recorded as pretest scores were from tests given at the beginning of the school year whereas the students did not enter the Mobile Learning Center program until either the third or fourth quarter of the year.

Descriptive data for the evaluation group is given in Table 3. The total of 136 students was only 39% of those who were enrolled in the project at sometime during the 1973-74 school year. There were large differ-

Table 3

Evaluation Groups

Descriptive Data by School and
Gates-MacGinitie Comprehension Test Level

	Bryant			North		Totals
	Level C ESAA (N=34)	Level D ESAA (N=34)	Level D Title I (N=21)	Level D Title I (N=16)	Level E Title I (N=31)	(N=136)
Grade Level 7	34	3	6	---		43
8	---	31	15	---		46
9	---	---	---	16		16
10					29	29
11					1	1
12					1	1
Male	18	17	10	7	14	66
Female	16	17	11	9	17	70
Mean Days Present	106	89	69	49	53	77
Mean Days on Roll	120	104	81	60	65	90
Attendance Rate	88%	86%	85%	82%	82%	86%
G.E. of Pretest Raw Score Mean	3.7	4.5	5.6	5.1	5.3	a

[a]Impossible to calculate because of varying grade norms for the different test levels.

ences in length of enrollment among the groups. The pretest scores were obtained from below grade level testing and are presented only as rough indicators of the reading levels of the students who entered the project.

The students who lacked posttests (41% of the project) were in general, on roll for an average of only 26 days. Often they transferred to other schools according to their teacher. At North, those who lacked posttests were frequently marked "truant" on the teacher's records. This statement is borne out by their very low attendance rate (43%). The pretest grade equivalents of students at North who had no posttests were lower than those of their peers. Among the Level D students the evaluation group entered at 5.1, those without posttests scored at 3.9. The Level E students without posttests had a pretest score of 4.3 while the evaluation group scored a whole grade higher on entrance into the program.

Results

The objectives for the project were that at least 25% of the students were to show a gain of 1.5 grade equivalent (G.E.) months on Gates-MacGinitie Comprehension tests for each month on roll and that 50% of the students were to gain at least one G.E. month for each month on roll.

Complete test data were available for only 39% of the students who registered at the Centers during the year. On the basis of results from those students the project met its objectives. It should be noted, however, that not only does the total evaluation group represent a small part (39%) of the Centers' total population but that the group was sub-divided for analysis purposes. This was necessary because of the three different levels of tests which were used, variations in program involvement (ESAA or Title I), and in length of time on roll. Distributions of G.E. gains for each of the evaluation groups are given in Table 4.

The percentages of students who gained at the rate of 1.4 months for each month on roll ranged from 56% (the 9th grade at North) to 85% (Title I students at Bryant) or well above the 25% stated as an objective. The percentages of those who gained at least one G.E. month for each month on roll ranged from 56% to 90% (for the same groups, respectively) rather than the 50% stated as an objective.

The median grade equivalent (G.E.) gains are meaningful only in relation to the amount of time the students were on roll. The rates of

Table 4

Grade Equivalent Gains Distributions

Grade Equivalent Gains	Bryant, ESAA Level C N	%	Cum. %	Bryant, ESAA Level D N	%	Cum. %	Bryant Title I Level D N	%	Cum. %	North, Title I Level D N	%	Cum. %	North, Title I Level E N	%	Cum. %	Combined[a] Groups N	%	Cum. %
+3.0 or more	0	0	0	2	6	6	2	9	9	1	6	6	4	13	13	9	7	7
+2.5 to +2.9	1	3	3	1	3	9	1	5	14	0	0	6	4	13	26	7	5	12
+2.0 to +2.4	4	12	15	5	15	24	4	19	33	4	25	31	4	13	39	21	15	27
+1.5 to +1.9	6	18	33	8	23	47	3	14	47	1	6	37	7	23	62	25	18	45
+1.0 to +1.4	9	26	59	7	20	67	3	14	61	2	13	50	4	13	75	25	18	63
+ .9	0	0	59	2	6	73	1	5	66	0	0	50	1	3	78	4	3	66
+ .8	0	0	59	0	0	73	1	5	71	1	6	56	0	0	78	2	2	68
+ .7	1	3	62	1	3	76	2	9	80	0	0	56	0	0	78	4	3	71
+ .6	1	3	65	1	3	79	1	5	85	0	0	56	1	3	81	4	3	74
+ .5	0	0	65	1	3	82	1	5	90	0	0	56	0	0	81	2	2	76
+ .4	5	14	79	2	6	88	0	0	90	0	0	56	0	0	81	7	5	81
+ .3	2	6	85	1	3	91	0	0	90	0	0	56	1	3	84	4	3	84
+ .2	1	3	88	1	3	94	0	0	90	0	0	56	0	0	84	2	2	86
+ .1	3	9	97	0	0	94	0	0	90	0	0	56	0	0	84	3	2	88
No Gain	1	3	100	2	6	100	2	9	99	7	44	100	5	16	100	17	12	100
Total	34	100%		34	100%		21	99%		16	100%		31	100%		136	100%	
Median G.E. gain	+1.2			+1.4			+1.3			+ .9			+1.7			+1.3		
Mean time on roll as tenth of school year	.7			.6			.4			.3			.4			.5		
Rate of gain[b]	1.7			2.3			3.2			3.0			4.2			2.6		
Percent who gained at least 1.4 months for each month on roll	59%			73%			85%			56%			81%			71%		
Percent who gained at least a month for each month on roll	62%			79%			90%			56%			81%			76%		

[a]Summary data based on a combination of test forms may be spurious. The combined groups figures are presented here only as crude average measures.

[b]The rate of gain was calculated by dividing the median G.E. gain by the mean time on roll.

gain given in Table 4 are the ratios of the median G.E. gains to the mean numbers of months on roll. A school month was considered to be 18 days or one tenth of the school year of 180 days since the grade equivalents for the tests were given in tenths of a grade level.

It was not the intention of this report to make comparisons between Bryant and North nor between Title I and ESAA students. The available results were given separately in Table 4 primarily because of the three test levels which were used and also because of the widely varying lengths of enrollment of the different student groups. Disregarding these important variables the G.E. gains of the five evaluation groups are shown in the last column of Table 4. The median G.E. gain overall was 1.3 in .5 of a school year for a rate of 2.6 months for each month on roll or a gain of a G.E. month for each month in the project by 76% of the 136 students who were in the total evaluation group. Such a statement summarizes gains but does not give a true picture of the project as it existed.

Discussion

The problems in trying to evaluate this project were many. The students came from five different grades, they used one of two reading programs (or a combination of the two), and they were tested with three different levels of the Gates-MacGinitie comprehension tests. Also, though every student was Title I eligible, half of them were identified as receiving benefits from the Emergency School Aid Act (ESAA). Rather than confuse these variables further, the available data were analyzed for five separate groups.

The loss of data which occurred was higher than it had been in previous years. Part of this loss was due to the fact that more students (41%) lacked posttests than the average (35%) for the two previous years. In addition, 20% of the "gain" scores were ruled invalid because of the use of different levels of the Gates-MacGinitie for posttesting from those which had been used for pretesting or because the pretests had been given up to five months before the students entered the program. It is likely that this confusion was due to the introduction of different testing procedures by the ESAA program from those used for Title I evaluation.

Recommendations

1. Improve the evaluation procedures by having an outside administrator for the tests. This administrator should be responsible for administering the proper test forms at the appropriate times in the year. There would still be less than 100% testing accomplished, due to student turnover and truancy in the schools concerned, but there would be much less data loss than in 1973-74.

2. Since evaluations of the project for the years from September 1970 to June 1973 showed the project to be effective, continuation of the project is recommended. However, if further evaluations are to be made they should be concerned not with the Mobile Learning Centers project as such, but with the effects of new reading curricula, the effect of ESAA or of Title I efforts city-wide. The numbers of students in the Centers becomes too small for meaningful evaluation when these important variables are considered.